

## MEMORANDUM

## State of Alaska

TO: Paul Novak  
Project Leader  
Division of FRED - Ketchikan

DATE: February 22, 1985

FILE NO:

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FROM: Carol Denton *CD*  
Fishery Biologist  
Division of FRED - Ketchikan  
Department of Fish and Game

SUBJECT: Ward Creek Coho Evaluation -  
1981 Deer Mountain Stock

This is a quick summary of our coho returns to the Ward Creek system in 1984.

#### Fry Stocking Information

number - 99,578  
date stocked - 12-82  
avg. size - 11.2 g  
CWT code - 4-22-25  
% tagged - 27  
tag retention rate at release - 98.8%

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#### Commercial Fishery Interception

CWT lab expansions show a total contribution of 778 fish to commercial fishery. Expanded by the marked:unmarked ratio this becomes 2881. Commercial fishery interception rate was 84%.

Table 1 shows interception by quadrant, PMFC area, gear type, and time. Fifty-eight percent of recoveries were from the southeast quadrant; 33% were from the northwest quadrant, the west coast of Baranof and Chichagof Islands. Seine gear intercepted nearly half (45%) of the southeast quadrant harvest. All northwest quadrant random recoveries were by troll gear.

#### Sport Fishery Interception

Expanded Ketchikan marine creel census data indicate a contribution of 223 fish, or 1.6% of the total sport coho harvest in the Ketchikan area. This is a 6% interception of the stock.

? One 1982 brood coho from the Ward Lake release was also recovered (CWT 4-23-40).

#### Escapement

Four surveys of Ward Creek (above the lake) were conducted in late 1984 by Novak, Siedelman and Denton. Numbers of adult coho seen are given in the attached Table 2. Based on the tagged: untagged ratio of carcasses in the lower creek on 11-29 and 12-5 and the tagged:untagged

ratio of our 1982 release, we can claim the peak number of adults (328) plus the four fish represented by one clip recovered in the upper creek. This means we contributed at least 332 fish to the escapement. Total escapement in Ward Creek was at least 545.

There appeared to be two fairly discreet adult coho populations in Ward Creek in 1984:

1. A natural population, peak run in October, spawns in upper section of creek (areas 6 and 7 on attached map). One tagged fish was recovered from this population, but it can probably be considered a stray from the planted stock.
2. Planted stock, peak run in late November, spawns in lower section of creek (areas 3 and 4 on attached map). Tagged;untagged ratio and tag code verifies these were all Deer Mountain fish.

Since the natural population spawns only in the upper reaches of the creek, two question come to mind: 1) does the lower section contain good spawning habitat? 2) Will the hatchery population be able to perpetuate itself?

#### Summary - 1984 Returns

	<u>No. of Fish</u>	<u>Interception Rate</u>
Commercial fishery	2881	84%
Sport fishery	223	6%
Escapement	<u>332</u>	
Total return	3436	

Survival = 3.45%

The Ward Lake coho rearing program seems to compare favorably with long-term hatchery rearing, especially when savings in hatchery budget and tank space are considered (Table 3).

cc: D. Bright  
M. Ward  
J. Holland  
S. Schwartz  
D. Siedelman

Table 1. Time and place of fishery interception, 1981 brood coho<sup>a/</sup>.

Area	Total	Tr	Gear <sup>b/</sup>			July		Time		August		Sept.	
			Gn	Se	Sp	E <sup>c/</sup>	L <sup>d/</sup>	E	L	E	L	E	L
NW/COUT - ###	23	23	-	-	-	5	17	-	-	-	-	-	-
NW/COUT - 113	152	152	-	-	-	22	39	26	27	38	-	-	-
NW/COUT - 154	51	51	-	-	-	-	6	35	7	-	-	-	-
NW/CNTR - 114	8	8	-	-	-	-	-	8	-	-	-	-	-
NW/NOU - ###	3	3	-	-	-	-	-	-	-	3	-	-	-
NW/NOU - 116	11	11	-	-	-	-	-	11	-	-	-	-	-
NW/NOU - 181	10	10	-	-	-	-	-	-	-	10	-	-	-
NW/NOU - 189	1	1	-	-	-	-	-	-	-	-	-	-	1
Total, NW Quadrant = 259													
SE/SIN - ###	34	10	-	24	-	-	-	5	24	5	-	-	-
SE/SIN - 101	281	72	62	147	-	-	-	7	114	147	13	-	-
SE/SIN - 102	36	8	-	28	-	-	4	-	30	2	-	-	-
SE/SNTR - 105	46	46	-	-	-	-	-	-	13	33	-	-	-
SE/CIN - 106	50	17	33	-	-	-	-	3	16	31	-	-	-
SE/CIN - 107	3	-	-	3	-	-	-	-	3	-	-	-	-
Totals, SE Quadrant = 450													
SW/SOUT	18	-	-	18	-	-	-	-	18	-	-	-	-
SW/SOUT - 103	23	18	-	5	-	-	-	2	10	10	1	-	-
SW/SOUT - 104	22	14	-	8	-	-	-	18	3	-	-	-	-
Total, SW Quadrant = 63													
NE/SNTR - 109													
NE/LYNN - 115			3							3			
Total, NE Quadrant = 3													

<sup>a/</sup> From preliminary CWT report dated 1-10-85. Expanded numbers of random recoveries, rounded to the nearest fish are used for this table.

<sup>b/</sup> Troll, gillnet, seine, sport

<sup>c/</sup> 1st through 15th of month = early

<sup>d/</sup> 16th through end of month = late

Recap:	Gear		
	Troll	Gillnet	Seine
#	444	98	233
%	57	13	30

SE Quadrant recoveries by gear		Area	
Troll	34%	NW Quadrant	33%
Gillnet	21%	SE Quadrant	58%
Seine	45%	SW Quadrant	8%
		NE Quadrant	0.4%

Table 2. Ward Creek coho escapement, 1984.

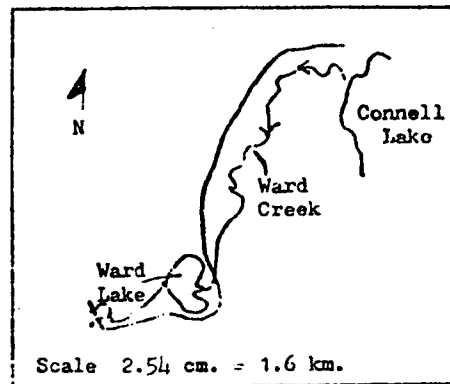
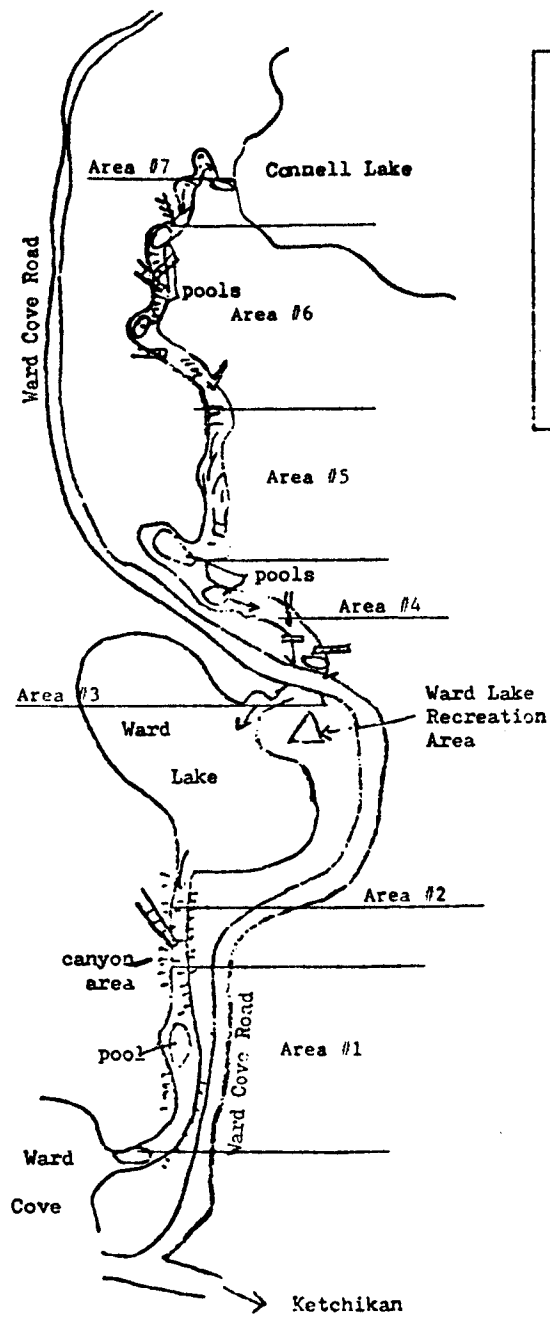
Survey Date	Creek Section	# Live	Untagged	# Dead Tagged	? <sup>a/</sup>	Total Dead
10-29	lower <sup>b/</sup>	97	13	-	-	13
	upper <sup>c/</sup>	186	22	1	4	27
11-6	upper	49	4	-	17	21
11-7	lower	76	22	3 <sup>d/</sup>	1	27
11-29	lower	294	25	9	-	34
	upper	16	8	-	-	8
12-5	lower	144	22	10	-	32

<sup>a/</sup> Too decomposed to verify adipose clip.  
<sup>b/</sup> From lake to Forest Service swinging bridge.  
<sup>c/</sup> From Last Chance camp ground to Connell Lake dam.  
<sup>d/</sup> Plus one CWT 04-23-40, 1982 brood coho, Deer Mountain.

Table 3. Comparison of coho rearing/release schemes.

Brood Year	# Eggs	D.M. Rear. Time	Number Release	Rel. Size	RETURN				% Return
					Comm. Fish	Sport Fish	ESC.	T.	
Ketchikan Ck.									
1979	156,550	15 mos	67,548	18 g	1867		549	2416	3.58
1980	240,163	15 mos	165,273	17 g	5688		1000 <sup>a/</sup>	6692	4.05
Ward Ck.									
1981	131,009	9 mos	99,578	11 g	2881	223	332	3436	3.45

<sup>a/</sup> Estimate based on 85% interception rate.



Revillagigedo  
Island

Figure 1. Ward Creek Divided Into Angler Census Areas